

**BEFORE THE ENVIRONMENTAL APPEALS BOARD
OF THE STATE OF DELAWARE**

PROTECTING OUR INDIAN
RIVER and INLAND BAYS
FOUNDATION, INC.,

Appellants,

v.

DEPARTMENT OF NATURAL
RESOURCES AND
ENVIRONMENTAL CONTROL

Appellee

Appeal No. 2014-01

DECISION AND FINAL ORDER

Pursuant to due and proper notice of the time and place of the hearing served on all parties in interest, and to the public, the above-stated cause of action came before the Environmental Appeals Board ("Board") on May 13, 2014, in the Auditorium of the Richardson and Robbins Building, located at 89 Kings Highway, Dover, Kent County, Delaware.

Members of the Board present and constituting a quorum were Nancy J. Shevock (Chair), Sebastian LaRocca, Michael Horsey, Dean Holden, Andrew Aerenon and Harold Gray. No Board members disqualified themselves or were otherwise disqualified. Deputy Attorney General Robert W. Willard represented the Board.

Appellants were represented by Kenneth Kristl, Esquire, of the Widener Environmental and Natural Resources Law Clinic. Jeremy Homer, Esquire and Elio Battista, Jr., Esquire, represented intervening party Allen Harim Foods, LLC (“Harim”). Harim had filed a motion to intervene in this case. There was no opposition to the motion and the motion was granted. Deputy Attorney General Keith Brady represented the Appellee, Department of Natural Resources and Environmental Control (“DNREC”).

STATEMENT OF THE CASE AND PROCEEDINGS

DNREC Secretary Collin P. O’Mara issued an order dated December 24, 2013 (the “Secretary’s Order” or “Order”) which approved a Proposed Plan of Remedial Action for 29984 Pinnacle Way, Dagsboro, Sussex County, Delaware, as a Final Plan of Remedial Action pursuant to Delaware’s Hazardous Substance Cleanup Act 7 *Del. C.*, Ch. 91. This site was previously used as a pickle processing plant by the Vlastic pickle company.

Appellants sent a letter dated January 16, 2014 to the Board stating that they wished to appeal the Order and the basis of their appeal, and that letter serves as the statement of appeal.

The parties entered a Stipulation before the hearing in which they agreed that Appellants have standing to appeal, and that the past compliance of Harim with any environmental law or the past compliance with environmental law of any predecessor of Harim at a facility now operated by Harim, would not be in issue, except for this Pinnacle site which is the subject of the hearing. The stipulation also stated that Appellants could introduce affidavits relating to the standing issue in case standing became an issue in any subsequent proceeding.

SUMMARY OF EVIDENCE AND ARGUMENTS

In accordance with EAB Regulation 4.0, the Board was provided with the Chronology, consisting of the record below.

Appellants' Position and Evidence

Kenneth Kristl said in an opening statement that the appellants believed the Secretary's Order was improper for three reasons. First, appellants believe that DNREC did not adequately assess the site. Second, DNREC did not assess the contamination that was off the site. Third, the Final Plan of Remedial Action was inadequate as it does nothing to determine the contaminants that are already off-site and the Plan is probably not adequate to capture all the contaminants on-site as they move off-site.

Katherine Martin testified for the Appellants. She works at her own company, Martin Environmental Services in Norman, Oklahoma. She has a degree in petroleum engineering from the University of Oklahoma and a master's degree in civil engineering. Among the classes she attended in school were classes on groundwater pollution and solid waste management. She also worked for the Oklahoma Water Resources Board, where she was in charge of the Tar Creek Superfund site, which had much groundwater contamination. She has been working in this field for many years and has testified as an expert witness in district court and administrative proceedings.

Ms. Martin reviewed maps of the site which were contained in the record, noting that a spray irrigation field was located at the bottom of the map. The Holiday Acres residential development is located below that and another residential area is located to the right. Warehouses and a main building were located at the top right portion of the map,

which is where the pickle manufacturing was done when Vlastic operated its plant there. To the left is the Sorting Grading Building and nearby is an area of gravel/asphalt, where outdoor storage vats are located. Farther to the left is a wastewater treatment plant where the pickle processing facility treated its domestic wastewater and industrial process water.

Ms. Martin testified that she reviewed the documents involved in the record of this case, including the Phase I assessment done by BP Environmental and the brownfields investigation, as well as many documents on the DNREC website concerning this property. Ms. Martin said she has concerns about the adequacy of the investigation into this property. She reviewed the soil borings and the monitoring wells which were done and believed they were inadequate. For example, soil boring 44 was only nine (9) feet deep, and Ms. Martin believed that was not deep enough to determine if there were leakages from a lagoon at the site.

Ms. Martin also testified regarding certain photographs that she took on Google of the site taken at different times. She indicated that these photographs showed that outside vats that were used to store pickles when Vlastic ran the plant were being dismantled between 2005, 2007 and 2010, when photographs she was reviewing were taken. Other photographs showed, she indicated, that all of the waste from the pickle processing plant, including waste from hundreds of employees, went to the wastewater treatment plant. She believed the studies done in connection with Harim's plans did not evaluate the subsurface beneath the vats to see if they leaked over the years. The vats contained brine, which Ms. Martin said was a concentrated sodium chloride solution, which would impact the groundwater for human consumption. Ms. Martin said there were very few soil borings done in the area of these vats by Harim's consultants or DNREC.

Ms. Martin said this site had problems previously when sludge from the sludge lagoon was applied to the spray irrigation field in the 1970's into the 1980's, causing nitrate pollution. She believed the source of the pollution was the wastewater treatment plant but felt the studies done on the site recently for this new project of Harim's did not discuss that. She was concerned that in the report from Harim's consultants, there was no discussion of risk associated with the wastewater treatment plant on site.

Ms. Martin testified that a sludge lagoon located on the site was to create an atmosphere for sludge to settle. It is turbulent when there is an input into it, and then the sludge settles and the decants from the effluent at the top can be removed and applied to land. She said other photographs showed that the plastic liner in the lagoon had holes in it, and therefore testing should have been done below the surface there to see if there was contamination. Ms. Martin noted that a photograph showing brown discoloration shows a place where the land applied wastewater drained and collected.

Ms. Martin testified that there was no investigation by Harim's consultants or DNREC of leakage from the vats through the asphalt into the subsurface. There was no investigation of leakage from the sludge lagoon, two concrete digesters, an aeration basin or the two above ground storage tanks.

Ms. Martin said that concrete vessels containing materials could leak and these containers were about forty years old and therefore the surface below them should have been, but was not, investigated by Harim's consultants or DNREC.

Ms. Martin also testified that there were other areas of the facility that were not properly evaluated by DNREC or Harim's consultants. There were several septic tanks and drain fields that were not mapped or discussed in any detail. She said there were oil

storage drums and one can see in photographs that there were stains on the floor around them, showing there were spills of some kind. She said there were various spills and leakage over the years and the wastewater from those spills went into drains in the center of the warehouse buildings and went to the wastewater treatment plant. The studies done for this project again did not deal sufficiently with the wastewater treatment plant.

Ms. Martin said in her opinion, there should have been at least two or three monitoring wells installed in the wastewater treatment plant area. One could not tell for sure how many were needed until good subsurface soil borings were done to try to find the hot spots. She felt that Harim's consultants and DNREC ignored the entire area of the plant near the wastewater treatment plant.

On cross-examination by Mr. Homer, Ms. Martin agreed that she did not actually walk on the site, but felt that walking on the site would not provide anything useful to her. She agreed that she did not evaluate the state of vegetation at the site, but felt she saw anything she needed to see in the photographs.

John J. Austin, Jr., testified for the Appellants. He was previously employed for 33 years by the U.S. Environmental Protection Agency. He worked on hundreds of superfund sites for that agency.

Mr. Austin gathered historical sampling data about the site himself and generated his own laboratory analysis data, because he was concerned that spills that had occurred at the site had mobilized heavy metals and that those metals had moved off-site. He collected 13 samples from off-site. The samples were analyzed by Lancaster Laboratories for heavy metal content, for arsenic, chromium, lead and cobalt. Cobalt was found in 8 of the 13 samples. Three of the samples exceeded the Environmental Protection

Agency's Region III Risk Assessment Tables Action Levels. The high sample was 12.3, which is 2.6 times the Hazard Index. Mr. Austin then attempted to explain that, under the Hazard Index, a non-carcinogen exposure to a substance for a chronic period of time will, in the case of cobalt, damage one's organs. It damages the heart muscle, liver, kidneys and thyroid. A significant portion of the population will have an adverse medical effect over time if exposed.

Mr. Austin indicated his belief that the cobalt was not naturally appearing on the site, but came in through the cucumbers used in the pickle processing plant. He reported but did not present evidence that cobalt appears naturally in cucumbers. Stems and pickles that that were ground up were spread on the spray field and clean water was later placed on top of the field which he believed moved the nitrate and cobalt off-site.

The 13 samples were taken from water in homes in the Possum Point area surrounding the site. Since Mr. Austin found levels of cobalt above Hazard Index, he notified the State's Secretary of Health and Social Services, Rita Landgraf, and a crew from the Department took samples that same night. The State found essentially the same results as Mr. Austin in the private home samples. State officials then tested two public wells in the residential areas of Holiday Acres and Colonial Estates and found no cobalt in those wells. There was no off-site sampling for cobalt done by BP Environmental in its study conducted for Harim.

Mr. Austin testified that there had been a 1500 gallon spill of water and brine mixture which had been reported to DNREC by Pinnacle several years ago. He said after the spill, wells in the residential communities around this site had increased levels of sodium. Also, sulfate was found which is not normally found in this area, and sulfate is contained in brine. He said there was also increased acidity in the water of the residential areas. He explained

that a pH 7 concentration is neutral, while pH 1 is highly acidic and pH 12 is very alkaline. The lowest level measured was pH 4.8 in the area at one location. All other pH levels were higher in the 5.4 to 7 range.

Mr. Austin testified that high nitrate levels were found in monitoring wells at the Pinnacle site and DNREC ordered Pinnacle in 1988 to stop putting sludge from the unit onto the spray field. This was successful in reducing nitrate levels. But in 1996, DNREC allowed Pinnacle to stop this program. Under the Safe Drinking Water Act, the maximum control level for nitrate is 10 and it took until 2007 for all of the wells in the area to be below 10. The wells along the perimeter of the site continue to have readings above 10 and Mr. Austin believes this means that high levels go past those wells into the residential areas. He said there are now higher concentrations of nitrate in the residential community Possum Point than exists at the site.

Mr. Austin testified that DNREC required Harim to submit a Long Term Stewardship Plan ("Plan"), which requires it to test an array of wells on site and along the perimeter to detect any movement of contaminants off-site. Mr. Austin said his biggest concern was that a 70-80 foot well in Colonial Estates is not being monitored in this Plan. A 104 foot well in Holiday Acres is included in the Plan. Some wells involved in the investigations have been dropped from the Plan, including a well along the perimeter of the property and these perimeter wells, Mr. Austin believed, would be the ones to show if contaminants are moving off-site. He noted that well 25 from the investigation is not included in the Plan and he believed the rate of flow shown in the records means that movement of contaminants might not be detected because of well 25's not being monitored. Regardless of rate of flow, Mr. Austin said that, absent well 25, one has no

intervening alert of any possible movement until it is detected in the perimeter boundary wells.

Mr. Austin was also concerned that in the Plan well 1 was also removed, which is a control well showing what is moving onto the site. There are wells in the center of the site to be monitored, but no wells between them and the boundary of concern. Mr. Austin noted that cobalt was found on site and has been found off-site and is concerned that the Plan is not properly monitoring for cobalt coming off the site. He is also concerned about the source of the cobalt, since it was found both onsite and offsite.

On cross-examination by Mr. Homer, Mr. Austin testified that cobalt was found in some drinking wells at Possum Point, but not in others.

In accord with the stipulation filed by the parties, Mr. Kristl introduced Exhibits 40-65 into the record, consisting of affidavits relating to the issue of the standing of the Appellants to be involved in this appeal.

Harim's Position and Evidence

Jeremy Homer indicated in his opening statement that Harim would produce much evidence showing there was a thorough examination of this site. Harim has not yet purchased the site but is interested in doing so. He said there would be about 700 jobs that could be available if this site could be used as Harim intends to use it. Mr. Homer noted that this was a brownfield site, and the State has successfully used the brownfield program in approximately 200 sites. He said by definition, a brownfield site does have some contamination. But the studies that were done at this site revealed that the groundwater carrying contaminants is flowing away from the Appellants' residences, and contamination found off-site has a different source. Mr. Homer noted his belief that the

most important document in the record before the Board is the Brownfields Investigation Report, which is thousands of pages long and addresses all of the concerns raised by Appellants.

Curtis Herman testified for Harim. He is the president and principal geologist and hydrologist of Austin James Associates, Inc. of Pocono Pines, PA. He has spent his 30 year career working on the investigation and remediation of contaminated sites. He has worked for DNREC beginning in 1985 working with underground storage tanks, superfund sites and other matters. He has developed models for studying the transport of underground water. He has testified as an expert witness.

Mr. Herman has physically investigated over 400 sites and has put together sampling plans. He has remediated sites and evaluated sites over the course of a 30 year career.

As to this Pinnacle site, Mr. Herman was contacted by BP Environmental and asked to review a brownfields file. He reviewed the Phase 1 report, the limited site characterization report and the Brownfield Investigation Report completed for this site. He also reviewed public health records for domestic wells and evaluated the water supplies in the area, determining who was using public water supplies and who was using private wells. He also reviewed sewage systems regarding who used a septic tank.

Mr. Herman visited the site and said that visiting the site was critical to an evaluation. Photographs are not sufficient, and one must walk through the site and look at the vegetation and various features in order to do a proper evaluation.

Mr. Herman reviewed maps of the area showing the former pickle processing plant, the surrounding neighborhoods and various portions of the pickle plant, including

storage tanks. He noted that these were food grade tanks, regulated by the Food and Drug Administration and the Department of Agriculture, rather than by an agency such as DNREC. Food grade materials were used in the production of pickles at the plant.

Mr. Herman also discussed the brownfields program, noting that it is a program adopted in many states. The purpose of the program is twofold. First, to re-utilize industrial sites. If this is not done, industrial/commercial developers are forced to use green space or land important to a community in its natural state. Second, to provide a mechanism for the evaluation of sites that would otherwise not be evaluated. The site otherwise would simply sit there. The program gives DNREC the ability to evaluate the impacts of the site historically and to determine the nature and characteristics of the site.

Mr. Harmon reviewed the steps that went into the Final Plan for Remedial Action. The first element was the Phase I study done by BP Environmental for Harim. Mr. Harmon testified that the Phase I study reviewed historical operations at the site, the waste that might have been generated and whether there might be potential contaminants of concern. He noted that two other phase I studies of the site were done by CABB Associates in 2013 and by URS in 2007 and these were included in BP Environmental's Phase I study. Mr. Harmon said that no sampling is done in this study, but rather it merely seeks to determine whether there might be contaminants and where those contaminants might be located.

Mr. Herman said the next study was the Limited Subsurface Investigation completed by BP Environmental and submitted to Harim in April, 2013, also referred to as the Phase 2 study. The scope of this study was to provide an initial evaluation of subsurface soil and groundwater based on the Phase I study's results to determine

whether potential contaminants identified in Phase 1 were present at the site in soils or groundwater.

Mr. Herman testified that it was only after both of these studies that Harim entered into a brownfields agreement with DNREC. Once the agreement is signed, an onsite scoping meeting is held with DNREC, and DNREC is heavily involved in the project thereafter.

Mr. Herman then reviewed and testified about the sampling and analysis plan. It was put together by Gary Lasako, the consultant for BP Environmental and forwarded to DNREC for approval. Mr. Herman said at the onsite scoping meeting, representatives of DNREC, BP Environmental and the owner of the site decided there were two areas of concern. The first was the spray irrigation field because solid wastes were historically deposited there. The sampling and analysis plan was to take 50 samples from that site through soil borings. The first set of samples were collected at between one and two feet of depth. The second set was collected at approximately 10-15 feet. The purpose of the samples was to get close to the static water level to find the potential impact to soil near the surface and the impact to soils as one moved down through the soil profile and toward the water table.

The second area of concern focused on the chemical storage area, which was considered a potential source of contaminants. Again samples were taken from shallow holes and deeper holes to see what was happening near the water table. In all, 102 samples were collected to characterize the soils based on the site's history.

Mr. Herman testified that monitoring wells were placed in strategic locations based on about 30 groundwater samples that were taken in the Phase 2 study. The

samples included those taken from 12 new wells, including three deeper wells set through the gravel and atop the clay level of soil. The investigation of groundwater also included sampling from existing wells and sampling of public supply wells on the site. The areas of sampling were determined based on best practices driven by historic operations and anticipated conditions. The study is biased toward evaluating the direction of groundwater flow to insure that there is ample coverage of down gradient, up gradient and lateral gradient to any source areas at the site. One well, Well 21, was located right through the former site of a fuel oil tank which had been removed earlier under the direction of the DNREC Underground Storage Tank Group. Well 17 was drilled through the abandoned former brine tank. These were critical areas.

Mr. Herman was questioned about criticism that monitoring wells were not placed near the wastewater treatment plant and other areas. He said samples were collected there during the Phase 1 and Phase 2 studies. The sample depth was approximately 14 feet, which is close to base of the wastewater treatment plant spray field.

Mr. Herman also testified that certain wells were installed to about 103 feet and they actually penetrate through the clay level of the soil which is located about 50 feet below grade. There was also a public well with a depth of about 273 feet.

Mr. Herman also reviewed a sediment sampling map stating that sediments were collected and a risk assessment was done by DNREC. He said vapor points were installed, including one in the chemical storage room, the purpose of which is to seal it beneath the subsurface at a fairly shallow depth and then draw an air sample to see if any vapors have any type of contaminants. These vapor points were installed in several appropriate areas.

Mr. Herman testified that in his opinion the sampling plan for soil characterization, groundwater characterization, soil vapor characterization and sediment sampling was more than adequate to determine the relationship of potential source areas and the nature and extent and movement of groundwater and any contamination that would move with it.

Mr. Herman also reviewed the Brownfield Investigation Report (BFI), which is about 5,000 pages long. He said it showed that out of 102 samples collected, there was one exceedance, which was for iron. There are two types of metal analyses completed, a filtered sample and an unfiltered sample. The unfiltered sample shows exactly what is in the groundwater. Some wet chemistry components were found, including nitrates, nitrites, chlorides, sodium and sulfates. Also, some dissolved metals were found. The dissolved metals included aluminum barium, manganese, lead and other metals. The only thing found leaving the site above the drinking water standard was nitrate. In the sediment samples, there were exceedances but well below regulatory requirements. Even though below regulatory requirements, these samples are set aside for evaluation based on a risk assessment criteria.

As to vapor samples, the only exceedance found was for chloroform. Chlorinated drinking water can generate chloroform under certain circumstances.

Mr. Herman reviewed Harim Exhibit 9, which was an addendum to the BFI report as requested by DNREC. It was an evaluation of what happens to a chemical constituent as it moves down gradient and projects potential impacts on aquatic surface waters and aquatic life as related to human health and the environment. The conclusion of this study was that all of the constituents met regulatory standards. Mr. Herman explained that this

was a study of groundwater. There is an evaluation of the concentration of contaminants or their degradation products as they move through the soil matrices. As they do so, they dilute and degrade and all of this is accounted for in the study. Data is put into a formula and a number automatically results. These numbers are not generated by DNREC, nor can the consultant massage the numbers. Metals were also involved in the study, as well as tetrachloroethylene (PCE), arsenic and nitrates.

Mr. Herman said he disagreed with the appellants' view that contaminants were migrating off-site, with the exception of nitrates. He said groundwater elevation contour maps were generated at the site.

Mr. Herman then reviewed a map and stated that there were three zones identified during the site characterization. Zone 1A involved wells with the lowest depth, of less than 24 feet. All of those wells were correlated to get the groundwater contour. Based on Zone 1A, groundwater flow is moving in a north by north/northwest direction, toward Wharton's Creek.

Zone 1B involved wells at a depth of about 40 feet. The contour map here showed the groundwater was moving in the same north/northwest direction toward Wharton's Creek.

The third zone involved the deepest wells, of about 50-52 feet. Again, these showed that the groundwater was moving in a north by north/northwest direction toward Wharton's Creek.

In order for groundwater to move in a different direction, there would have to be some sort of an anomaly, some significant change horizontally in the sediments. This

was simply not seen at the site. The horizontal plain is fairly uniform and the sediments are laying flat.

Mr. Herman explained the impact that the wetlands have on hydrology. He said there were tidal influences in this area. The tide is three and a half feet and comes in and goes out twice a day. In coastal areas, one must account for the salinity of groundwater as it is moving and approaching the discharge boundary. Indian River has a direct tidal influence and has a higher salt content than Wharton's Branch. One must look to see if the tidal influence has any impact on the site and whether it might reverse the gradient. The study showed that it does not have this influence at the site. Mr. Herman said that the tidal influence therefore was not going to change the direction of the flow.

Mr. Herman said it was important to remember that groundwater was moving north by north/northwest. Groundwater is moving across and continues down onto Possum Point and discharges against the dense seawater. Because the seawater is more dense, this is the preferential flow direction for groundwater. Mr. Herman said it is like hitting a brick wall. The groundwater stops dead and that is why there is no reversal or sideways gradient of groundwater flow.

Mr. Herman also testified that pump test data also verified that the groundwater flow was in a north by north/northwest direction. Pump testing was done on the site in 1991 to pump and treat the site in compliance with a DNREC requirement to reduce the nitrate concentration from extending beyond the property boundary.

Mr. Herman noted that nitrate levels were leaving the site in excess of regulatory standards. In order to understand this, one must review historical data for the area. A very good study was done in 1979 by Delaware Water Resources out of the University of

Delaware. It was an evaluation of nitrate in the groundwater of the Delaware coastal plain. This study was introduced as Harim Exhibit 10. This study showed that there were high nitrate concentrations throughout the area naturally. They are not related to any activity taking place at the Pinnacle site.

Mr. Herman testified that Holiday Acres has a well which they treat because every well in the area has high iron. The well water is treated with an ion exchange resin which removes iron. Sodium goes into the water and iron comes out. Also, Holiday Acres has a septic field within a hundred feet of the well containing human waste. When that goes into the subsurface, it creates an anaerobic environment. Metals will be dissolved out of the natural materials as they move in the direction of the groundwater flow. Every metal concentration decreases with distance from the source area. The highest nitrate reading on the Pinnacle site is at well 4, which is closest to Holiday Acres and immediately down gradient. Therefore, he reported that the impact of well 4 is not the result of the Pinnacle facility but actually comes from Holiday Acres into the Pinnacle site.

As to Possum Point and Colonial Estates, Mr. Herman said most of the homes are on small acreage properties, and almost all have septic tanks and wells. The wells, septic tanks and leach fields drain waste from the residential activity and as a result, the system goes anaerobic, which means the pH level drops and becomes more acidic and dissolves out metals. Essentially, what is occurring is that each individual well will have certain metals which dissolve out on the natural formation. This is the result of the land use and that's why there are metals in those particular wells. It is not because something is moving from the Pinnacle site, but it is simply due to the activities at the local site itself.

As to cobalt, Mr. Herman testified that cobalt is inherent to Delaware. The highest concentration of cobalt in this area was found on the Pinnacle site. There is no source area causing this. Rather, the source is likely the location of the septic tanks and cesspools relative to the well in any given property.

Mr. Herman testified that one cannot base a conclusion on any one given issue. Rather, all of the data must be examined and the area looked at as a whole. The only conclusion possible is that there are no plumes leaving the Pinnacle site. There is a sporadic occurrence of metals and they result from the neighboring activity in the residential areas.

Mr. Herman also reviewed the Long Term Stewardship Plan, required by the Final Plan of Remedial Action issued in the Secretary's Order. Mr. Herman testified that the Plan sets out a monitoring plan that is appropriate for this site.

Mr. Herman also reviewed the Contaminated Materials Management Plan. It lays out the contaminated areas that need to be closely scrutinized and evaluated, which in this case is the former chemical storage room and adjacent areas. The Plan helps to insure the health and safety of future workers who might come onto the site. Mr. Herman testified that this plan too is adequate for purposes of the Brownfields Program.

Mr. Herman reviewed the Approval of the Revised Long Term Stewardship Plan and Contaminated Materials Management Plan by DNREC and its Site Investigation and Restoration Section (SIRS). These Plans had been revised based on input from DNREC. The investigation concluded that no contaminants are leaving the site above drinking water standards, with the exception of nitrate. Nitrate is ubiquitous to the area, and therefore there is no need to monitor off-site. There would be one off-site monitoring

well placed in Holiday Acres. Mr. Herman had recommended this, to alleviate public concern. He also said two more wells would be installed, one shallow and one deep, again to hopefully alleviate public concerns about the area.

Mr. Herman testified that the Plan is good because changes can be made to it based on data obtained.

On cross-examination, Mr. Herman agreed that groundwater moves off the Pinnacle site and any contaminants in the groundwater also move off site. He said that the exceedences found in well 4 was the result of the iron removal process and septic tanks found in Holiday Acres. The well in Holiday Acres is treated by an ion exchange resin softener, which is regenerated with a brine solution containing sodium. Metals result from a change in pH factor. As pH levels drop, things become less alkaline and metals dissolve. Mr. Herman said as the groundwater moved in the downgradient direction metals are precipitated as pH rises. The metals found in well 4 have dissipated by the time the groundwater reached wells 24 and 25. The effect from Holiday Acres has also dissipated by the time the groundwater reaches well 19. Mr. Herman said that as one leaves Holiday Acres and goes toward the central portion of the spray irrigation field and one moves up to the source area, there is a lowering of pH. He said the lowering of pH can result from different things. In the Holiday Acres well, it resulted from septic discharge.

On questioning on cross-examination, Mr. Herman said that map 8 showed groundwater contours. Upon questioning, he then discussed a series of well depths along the contour line. There were elevations of water at lines of equal potential moving across the site. The map contains a dotted line showing a depth of 12 feet. Well 24 is 13.11 feet,

and therefore is to the right of the dotted line. There is also a dotted line showing a depth of 8 feet. At the bottom of the 8 foot line is well 25 and its elevation is 8.25 feet. The contour then curves through the chemical storage room and then well 19 is 7.96 feet, on the low side of the 8 foot line. Mr. Harkins agreed that well 20 is 8.44 feet, which should be on the upper side of the 8 foot line, but is on the lower side. Well 21 next to it is 8.13 feet. Mr. Harkins was then asked whether this meant the contour line did not travel directly, but rather made a turn to the right and went to the east to fit around wells 20 and 21. He said that was not the case. Rather, there are simple heterogeneities that occur in groundwater. The lines are not straight but curved, and can curve around an individual well. One must look at the overall general flow to determine the contour.

Mr. Herman testified that the background standard in Delaware for cobalt is 23. He was then presented with Appellants Exhibit 66, a DNREC report from 2012 entitled "Statewide Background Study: Report of Findings." That study showed that in two areas of Sussex County, no cobalt was detected, but that was in soil. Mr. Herman was also asked about Exhibit 9, the addendum to the Brownfields Investigation Report. He agreed that this report did not study cobalt as a potential contaminant because the only contaminants considered were those that exceeded regulatory requirements, and cobalt did not.

Mr. Paul Miller also testified for Harim. He is the principal engineer and vice president of Environmental Alliance. He is a licensed professional engineer in seven states, including Delaware. He has been in the field of environmental consulting and engineering for about 28 years, performing investigations and remediation work and

performing risk assessments. His company was hired by BP Environmental to perform a risk assessment on the Pinnacle property.

Mr. Miller explained that the risk assessment is part of the brownfields investigation process. Site specific data is collected and standard criteria is applied to that data to develop potential risks of exposure, both carcinogenic risk and non-carcinogenic risk. Results are compared to regulatory standards. He explained that certain exceedances found do not exceed health standards. Rather, they exceed standards of a DNREC screening table, which are very conservative and actually ten times more protective than what would be considered a risk based number.

Mr. Miller went over the results of the risk assessment his company performed. He said that arsenic was found in the wells exceeding the carcinogenic risk criteria established by DNREC. He explained that this was not necessarily a danger, but simply meant the data needed to be further evaluated. He noted that his company examined both filtered and unfiltered data from the wells. He said arsenic was detected in only two wells, well 4 and well 24. Only well 24 had arsenic above the Safe Drinking Water Act's maximum. But he said this data was unfiltered. He said these samples were turbid or dirty samples, meaning there was a lot of dirt in the sample. When it was filtered, arsenic was not present.

Mr. Miller testified that well 4 contained numerous substances in both the total and the dissolved state. It showed arsenic was present but in concentrations that were less than the Safe Drinking Act's contaminant levels that are allowed in drinking water. He said DNREC asked them to use a very conservative analysis. They used the maximum concentration of any metal found in the dissolved state and used that as the

figure to which one might be exposed to in the water from the site. Arsenic was not detected in the dissolved state in any other well.

As to actual risks posed by this data, Mr. Miller testified that there is risk only if a person is actually drinking this water daily for multiple years. But the water in this well is not being drunk by anyone. Drinking water comes from public supply wells in the area and those are free of arsenic. He also said the water in this area appears to be a localized condition, and not the result of anything occurring on the property, but rather something occurring off the property.

Cobalt exceeded the non-carcinogenic risk parameters, but only assuming a residential exposure going forward. It did not fail the risk assessment for industrial uses.

Chromium was found in various samples but was not considered an issue for the site.

Nitrates were also found in various wells, but did not exceed risk criteria on a site-wide basis.

Mr. Miller testified that he has done dozens of risk assessments in Delaware, Pennsylvania and Virginia. He testified that the monitoring to be done at this site is the appropriate remedy based on the findings of the investigation, and more than adequate to keep track of what's happening at the site. There are no contaminants that are site-related that are leaving the site and going into off-site receptors. The dominant flow of the groundwater is not toward the residential areas.

On cross-examination, Mr. Miller was questioned about DNREC's regulations and its definition of "acceptable risk." Mr. Miller said the Hazardous Substance Cleanup Guidance Manual states, for non-carcinogenic substances, that if the Hazard Index

exceeds unity, indicating that potential risk exists, the individual compounds at the site are to be segregated and a calculation of individual hazard is done for each target organ for children and adults individually, and then combined to obtain a lifetime hazard index. This analysis was performed and no potential risk was concluded.

DNREC's Position and Evidence

In his opening statement, Mr. Brady noted that he would be presenting Mr. Tim Ratsep as a witness. Mr. Ratsep administers many programs under the Hazardous Substance Cleanup Act, including the Brownfields Program. Mr. Brady stated that the evidence presented would establish that the investigation which was done was adequate and that the Final Plan of Remediation is appropriate.

Tim Ratsep testified for DNREC. He is employed by DNREC as Program Administrator for the Site Investigation and Restoration Section. He said DNREC has several programs that address contamination under the Hazardous Substance Cleanup Act, including the Brownfields Program. His unit has addressed about 1,000 sites throughout the state. The Brownfields Program has existed about ten years and his unit has certified about 200 sites under that program.

Mr. Ratsep testified that the University of Delaware commissioned two studies of the Brownsfield Program. It found that for every dollar invested in such sites, the state receives back about \$17.50 in jobs, taxes, and other benefits. The studies also showed positive social impacts from the Program regarding education and quality of life issues. In particular a high crime area of the city of Wilmington had a successful Brownsfield Program site which was involved in the social impact aspects of the study.

Mr. Ratsep said he has a dedicated staff dedicated to protecting human health.

Mr. Ratsep also testified that monitoring, as required by the Final Plan for Remedial Action in this case, which excludes off-site monitoring, is a very common remedy for DNREC. At this site, there was no real need for remedial action because there was nothing that posed a risk to human health. Rather, the monitoring plan was established to insure that the conditions present during the Brownfields Investigation remain consistent. If monitoring reveals any change, the conditions can be evaluated and addressed.

Mr. Ratsep testified that if some potential off-site migration of groundwater or an increase in concentrations were discovered, there would be additional evaluation. There would be additional sampling done and additional wells installed. If increased concentrations were found, the program would change from a long term stewardship to an active remedial action. Whoever was responsible for contamination would be responsible, whether that be Pinnacle as the former owner, or the new owner if a new release from the site caused the problem.

On cross-examination, Mr. Ratsep testified that DNREC did not require off-site sampling because there was no indication that any off-site contaminants came from the Pinnacle site.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

After deliberation and careful review of the parties' arguments and evidence, the Board unanimously votes to approve the Secretary's Order and deny the appeal.

The Hazardous Substance and Cleanup Act (*7Del. C.*, Ch. 91) provides that the Secretary shall implement the Act, including conducting investigations where

appropriate. Section 9104 calls on the Secretary to establish procedures for conducting site assessments and evaluations. Subchapter II of the Act establishes the Brownsfield Development Program. Section 9122 states that underutilization of brownfields operates to the economic detriment of the State, because it limits employment and needlessly uses valuable "greenfield" resources. That same section of the law calls for the establishment of a program to investigate, remediate and redevelop these sites.

Section 9123 defines a "Brownsfield Development Agreement" as an agreement between the Secretary and a brownfield developer that sets forth a scope and schedule of activities to assess and respond to the actual, threatened or perceived release of hazardous substances at the facility.

It appears to the Board that an appropriate investigation was done at this site and it revealed that no contaminants were moving from the site to the surrounding residential areas.

The Board finds that the groundwater at this site is moving generally in a north by north/northwest direction, as stated by Harim's witnesses. All of the investigation, including the pump testing that was done, appears to confirm this. Therefore, no contaminant is leaving the site and going toward the residential communities. Rather, the contaminants found on site are coming from those community areas and traveling to the site.

Contrary to Appellants' assertion, the Board finds that this site was adequately assessed, that off-site issues were properly considered and that the Final Plan of Remedial Action is adequate.

There was discussion during the hearing as to whether certain witnesses could be termed "expert" witnesses for both the Appellants and Harim. The Board accepted the testimony of these witnesses understanding that they had expertise in certain areas but also gave opinions in areas where their expertise might be questioned. The Board gave appropriate weight to this testimony.

While appellants' witnesses believed additional sampling should have been done, the evidence shows very clearly that sufficient sampling was done. One may wish that even more extensive testing and investigation was performed, but the evidence revealed that additional investigation was not necessary.

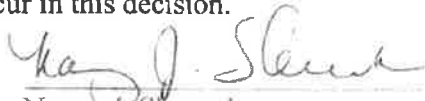
There are contaminants existing in the residential areas near the site, but the Board finds that these contaminants are likely the result of septic tank waste and other issues in the residential communities themselves, and are not caused by contaminants traveling from the Pinnacle site into the neighborhoods.

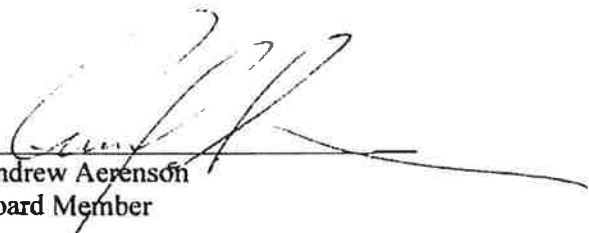
Section 9110 allows anyone aggrieved by a decision of the Secretary to file an appeal to the Environmental Appeals Board. Any person substantially affected by a decision of the Environmental Appeals Board may appeal to the Superior Court within 30 days of receipt of the written opinion of the Board.

The Secretary's Order is affirmed.

IT IS SO ORDERED, this 24th day of JUNE, 2014.

The following Board members concur in this decision.


Nancy J. Shevock
Chairperson



Andrew Aerensohn
Board Member

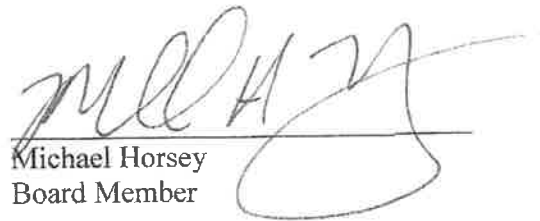
Date: 6/18/14

Appeal No. 2014-01

Protecting Our Indian River and Inland Bays Foundation, Inc.

v.

Department of Natural Resources and Environmental Control


Michael Horsey
Board Member

Date: 6/23/14

Appeal No. 2014-01

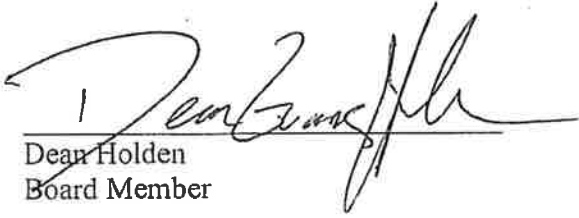
Protecting Our Indian River and Inland Bays Foundation, Inc.

v.

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Date:

6/18/14

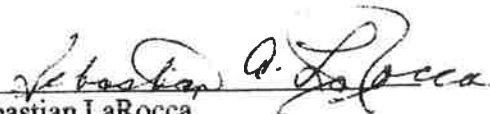

Dean Holden
Board Member

Appeal No. 2014-01

Protecting Our Indian River and Inland Bays Foundation, Inc.

v.

Department of Natural Resources and Environmental Control


Sebastian LaRocca
Board Member


Date: 6/18/14

Appeal No. 2014-01

Protecting Our Indian River and Inland Bays Foundation, Inc.

v.

Department of Natural Resources and Environmental Control


Harold Gray
Board Member

Date: 6/18/2014

